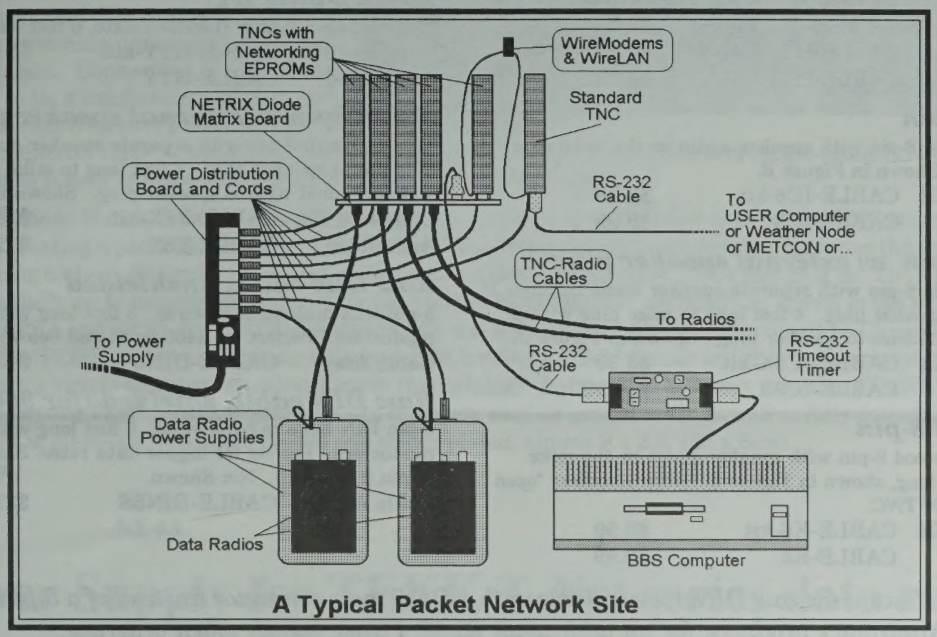
PACKET NETWORKING



A Typical Packet Network Site

Amateur Networking Supply is a small company of packet networking enthusiasts, dedicated to providing the tools required for building better Packet Radio networks. We build products for our own use, offering them to others to help make networking more enjoyable. We design quality and reliability into our products, because we use these products ourselves. However, if you find any of our products less than what you expected, we hope that you will give us the opportunity to correct any problems you may encounter. ***Your satisfaction is guaranteed.***

Spring 1994

Amateur Networking Supply

Post Office Box 219
Montvale, New Jersey 07645

TNC to Radio Cables

Each of these TNC to radio cables has a 5-pin DIN connector with standard TNC2 (5-pin DIN plug) wiring at one end, and the specified microphone connector on the other end. The cables are offered both fully assembled and as kits, so you can assemble your own for less money than it would cost for the wire and connectors! **Custom cables are available upon request:** please write with details of the desired radio connector (description, connection diagram) and quantity desired for a prompt price quote.

ICOM 2-plug HT (IC-2AT)

TNC to ICOM 2-plug Handie-Talkie (eg. IC-2AT), 6 feet long. Figure A.

Complete Kit	CABLE-HT-kit	$1.99
Assembled	CABLE-HT	$7.99

ICOM 1-plug HT (IC-W2A)

TNC to ICOM 1-plug Handie-Talkie. Uses 3 conductor 1/8" (3.5mm) plug, 5 feet long. Not shown.

Complete Kit	CABLE-HT1-kit	$2.99
Assembled	CABLE-HT1	$9.99

ICOM 8-pin

TNC to ICOM 8-pin with speaker audio on the mike plug. 5 feet long. Shown in Figure B.

Complete Kit	CABLE-IC8-kit	$3.99
Assembled	CABLE-IC8	$9.99

ICOM 8-pin w/ external speaker plug

TNC to ICOM 8-pin with separate speaker audio through 1/8" (3.5mm) speaker plug. 4 foot long to mike plug with 2 foot additional wire to speaker plug. Shown in Figure C.

Complete Kit	CABLE-IC8X-kit	$3.99
Assembled	CABLE-IC8X	$12.99

Kenwood 8-pin

TNC to Kenwood 8-pin with speaker audio on the mike plug. 5 feet long, shown in Figure B. *Note: Requires "open squelch DCD" TNC.*

Complete Kit	CABLE-K8-kit	$3.99
Assembled	CABLE-K8	$9.99

Kenwood 8-pin w/ external speaker plug

TNC to Kenwood 8-pin with separate speaker audio through 1/8" (3.5mm) speaker plug. 4 foot long to mike plug with 2 foot additional wire to speaker plug. Shown in Figure C.

Complete Kit	CABLE-K8X-kit	$3.99
Assembled	CABLE-K8X	$12.99

Yaesu 2-plug HT

TNC to Yaesu 2-plug Handie-Talkie, 6 feet long. Figure A.

Complete Kit	CABLE-HTY-kit	$1.99
Assembled	CABLE-HTY	$7.99

Yaesu 8pin w/ external speaker plug

TNC to Yaesu 8-pin with separate speaker audio through 1/8" (3.5mm) speaker plug. 4 foot long to mike plug with 2 foot additional wire to speaker plug. Shown in Figure C.

Complete Kit	CABLE-Y8X-kit	$3.99
Assembled	CABLE-Y8X	$12.99

Raw DIN cable, unshielded

5-pin DIN male to bare wires. 5 foot long with 5 separate conductors. Perfect for 2400 baud and below. Not shown.

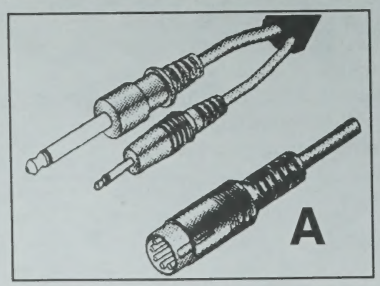
Cable Assy	CABLE-DIN5	$1.25

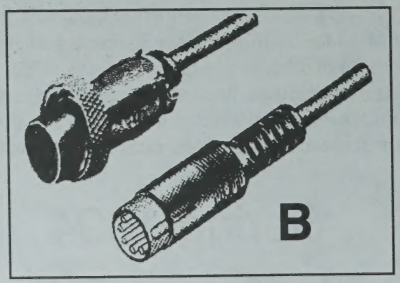
Raw DIN cable, shielded (for 9600 baud)

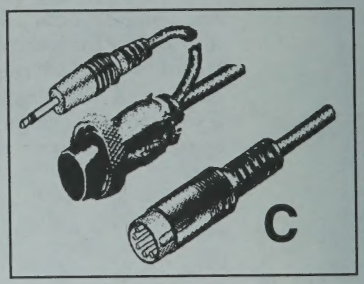
5-pin DIN male to bare wires. 5 foot long with 4 shielded conductors. Perfect for higher data rates. Shields attached to pin 2 (ground). Not Shown.

Cable Assy	CABLE-DIN5S	$3.99

Each cable (except the raw DINs) is available with a DE-9 male connector (instead of a 5-pin DIN), which fits most Kantronics products, for an additional $3.00. Please specify when ordering.







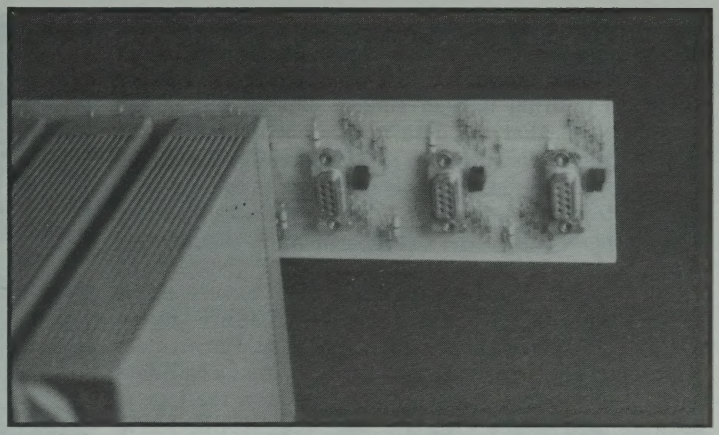
TNC Adapters for NETRIX

These commonly available adapters are used to connect the NETRIX to certain TNCs. If you are using an MFJ or TAPR TNC, order a 9-pin male to 25-pin male adapter. If you are using a DRSI TNC, order a 9-pin male gender changer.

Order Item:

9 to 25 adapter	AD9M-25M	$2.49 each
Male gender changer	AD9M-9M	$2.49 each

The NETRIX Diode Matrix Board



TNCs not included, for illustration only

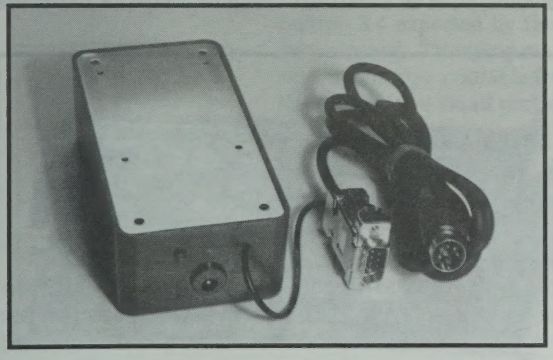
Packet radio networks are built by connecting two or more Terminal Node Controllers (TNCs) together to create a *network switching node*. These switching nodes are linked together via radio *backbones* to form the network. The network transports data, in the form of small *packets* of information, from place to place within the network, allowing the users of the network to perform various tasks, such as electronic mail, remote sensing and control, and information retrieval from electronic libraries. The user enters the network through a local user port, and then connects through a few network switching nodes until the destination is reached. Connecting the TNCs together used to be a cumbersome process, involving a home-brew mess of diodes, a complicated multi-connector cable, or a diode matrix board that uses expensive, unsightly and tangle-prone RS-232 cables. The NETRIX makes it easy to build your network with a minimum of hassle.

The NETRIX Diode Matrix Board is a passive circuit that connects up to 6 Packet networking TNCs together via their RS-232 port, creating a packet network switching node. The unique circuit board design eliminates the need for RS-232 cables, reducing costs while producing a neat, professional-looking installation. TNCs just plug in! TNCs may be placed either horizontally or, to improve cooling airflow (and therefore reliability), vertically as shown in the photo. Endorsed by NEDA, NAPRA and RATS, the NETRIX is electrically and mechanically compatible with all TNCs capable of running TheNET and/or ROSE packet networking software (TNCs using a DB-25 female or DE-9 female connector for RS-232 signals require a simple adapter - see elsewhere in this catalog). Networking software selection (TheNET or ROSE) is via slide-on jumpers. The NETRIX is available as a complete, easy-to-assemble kit, as well as fully assembled and tested. The PC Board is glass-epoxy, etched, drilled and solder plated, approx 9 x 2.5" (23 x 6cm).

Order Item:

Complete Kit	**NX-6**	**$24.95**
Assembled	**NX-6A**	**$39.95**

Power Supply for TEKK T-Net series data radios



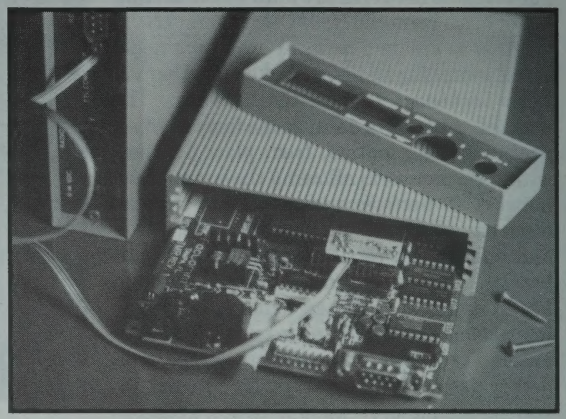
This power supply for the popular, low-cost TEKK T-Net series data radios lets you *safely* power your high-speed link radios from your station's 12 volt power supply. The filtered and regulated 9.6 volt, 1.5 Amp (max) output comes from a solid state IC power converter with an oversized heat sink for reliable, clean power, even in less-than-ideal conditions. Foldback overload current limiting protects the power supply and your radio from overload conditions. The sturdy ABS case with aluminum cover provides a convenient mounting system, reducing clutter and the possibility of damage. The input power (11.5 to 16 volts DC) is via a TNC-style coaxial power jack accepting a standard TNC-style 5.5mm OD x 2.5mm ID plug (included). The LED power indicator is connected to the output, so you can be sure the radio has power, and the 3 foot long fully shielded integral TNC cable is just right for 9600 baud operation. All connectors are solder-type, not molded, in case repairs become necessary. Includes instructions for using the TNC's DIN jack to connect a high-speed modem. *Simply the best way to power your T-Net data radios!*

Order Item:

Complete Kit	**PS-T-kit**	**$18.99**
Assembled	**PS-TEKK**	**$34.95**

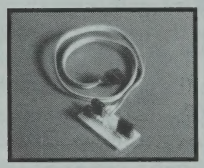
The WireModem Adapter

The WireModem Adapter is, as the name implies, a modem that operates over a wire. This simple, inexpensive circuit is an excellent alternative to connecting TNCs together using the internal modem audio. One benefit of the WireModem is that the data rate is not limited by the internal modem (usually 1200 baud), and can be 9600 baud or faster. Another advantage is that you can connect multiple (up to 6) TNCs together, which is not possible when using modem audio. The circuit, which installs like any other external modem, is compatible with all TNCs having a 20 or 26-pin Modem disconnect header. Included with the WireModem Adapter Set is a passive WireLAN Matrix, which allows individual TNCs to be easily disconneced, for service, etc. The circuit, which uses only 2 wires for both data and full flow control, functions regardless of the type of software used by the TNC (e.g., TheNET, ROSE, TAPR, KISS, TCP/IP etc.).



Shown installed in a PacComm Tiny-2

One application is for connecting a user TNC into a network node stack without using a radio, which is really useful for those of us running networking sites at home. If you run a BBS, a WireModem allows you to connect a BBS port directly into the network, for excellent network access, as well as faster and better forwarding. Great for other network servers, too, such as DX Clusters, weather nodes, gateways, etc.



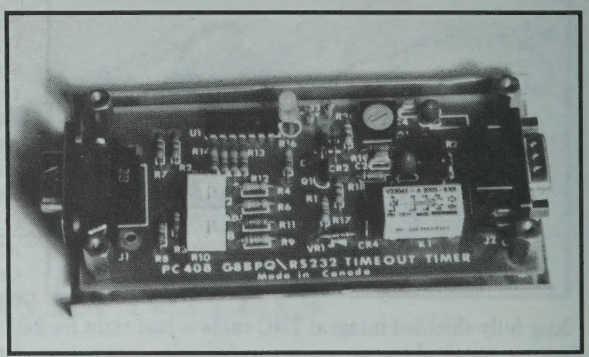
A female header connects the WireModem Adapter to the TNC's Modem disconnect header. Powered by the TNC's signals. Maximum data rate and separation of interconnected TNCs is limited by the wiring capacitance, data rate, and number of WireModems connected. The maximum distance is usually less than 10 feet, and the data rate is usually limited to 19,200 baud or less. The small (1" x 0.5") circuit board will fit inside most any TNC. Assembles easily in minutes, simple and reliable operation.

Order Item:

WireModem Adapter Set, complete kit **WM-1S** **$12.95** ***(for six TNCs).***

G8BPQ/RS-232 Timeout Timer

If you run computer-based node emulation software (eg. G8BPQ or MSYS) directly onto a TheNET matrix, then this circuit is just for you. You probably know by now that any problems, such as a software crash or computer hardware problem (even a switched-off computer!) will bring your TheNET matrix to a screeching halt, with no hope of recovery until the computer and software are up and running again. The Timeout Timer eliminates this problem by monitoring your computer's RS-232 port, disconnecting the computer from the matrix if there is no activity from the computer. LED indicators for Power and Timeout show you the system's status at a glance. Simply install it in line with your DE-9 RS-232 cable and connect to 12 volts. The circuit is easy to build and align, and a custom aluminum case is available. This circuit is designed by VE2BMQ and built by Lantronics of Canada. Those of you fortunate enough to live in Canada can contact VE2BMQ and Lantronics directly at PO Box 92, Howick QC J0S 1G0.



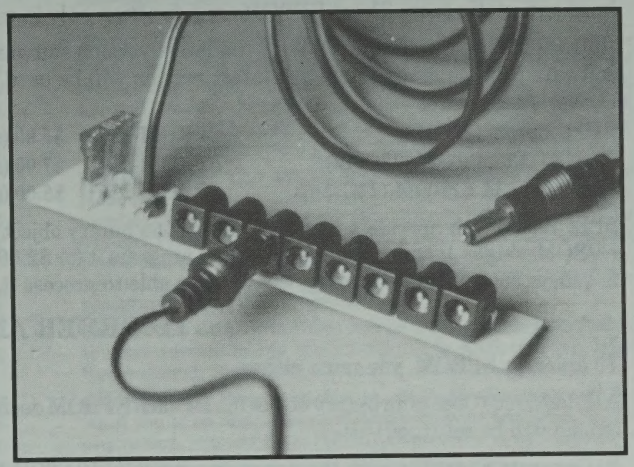
Shown with part of optional case

Order Item:

RS-232 Timeout Timer Bare Board	**BPQ-PCB**	**$14.95**
Complete Kit	**BPQ-kit**	**$29.95**
Fully Assembled	**BPQ**	**$44.95**
Optional Custom Case	**BPQ-CASE**	**$12.95**

Power Distribution Board

ANS presents a neat solution to the problem of power distribution at network sites. The ANS Power Distribution Board has eight TNC-style DC power jacks, each of which can supply power to a TNC or other low-current consumer. The compact (0.8 x 5.5 inch) Printed Circuit Board assembles in minutes, and can be conveniently mounted using either a strip of Velcro (included) or screws that you supply. The Power Distribution Board is fused and reverse-polarity protected, and features a status indicator LED that glows green when power is applied and red to indicate a blown fuse. A 22µF tantalum capacitor provides additional filtering of the supply voltage and helps reduce RF interference. The five foot long, 18 gauge power input cable is color-coded for polarity. Equipped with a commonly available 5 Amp blade-type (ATO) fuse, the Power Distribution Board will easily power eight typical TNCs with capacity to spare. Offered as a complete, easy-to-assemble kit as well as fully assembled, the ANS Power Distribution Board will keep your network site's power cables neat, orderly, and safe.



Shown with optional power cord attached
Product may differ slightly from photo

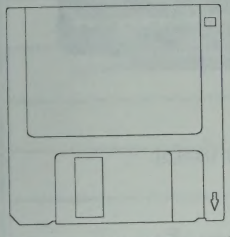
The Power Distribution Board uses simple power cords, with a TNC-style (5.5mm x 2.5mm) coaxial power plug on each end. We offer a simple power cord kit, with 2 connectors and two feet of 24 gauge zip cord, which is long enough to reach, but too short to tangle.

Order Item:

Power Distribution Board, Complete Kit	**PDB-1-kit**	**$15.95**
Assembled	**PDB-1**	**$24.95**
Power Cord Kit	**PDB-CORD**	**$1.99 each**

Software, Documentation

To help you understand the networking software better, we offer printed documentation for G8KBB's TheNET X1 or W2VY's ROSE (please specify). This documentation is not just a copy of what comes with the software, but original material that offers a different point of view. Both manuals offer detailed information, which complements the original documentation by the software authors, about setting up and configuring the network TNCs. The sysop manual for the ROSE X.25 Packet Switch, currently at version 3.1, is about 60 pages long, and includes a User manual. The update to version 3.4 expected by the middle of May 1994, at which time the older version will be discontinued. The sysop manual for TheNET X1, currently at version X1J, is about 30 pages long, and is also available from the North East Digital Association (PO Box 563, Manchester NH 03105) as a small portion of their Annual, which is sent to all members.



We also offer the latest versions of TheNET and ROSE networking software, for only the cost of floppies and processing. This software is available from many sources for free, but we offer it as a service to those without telephone modems or other means of obtaining it. All software is delivered on low-density 360k 5.25 inch floppy disc.

Please understand that software and documentation are not returnable unless defective, in which case it will be replaced. The latest versions available of software and documentation will always be shipped. The software is offered without any warranties as to function or performance, and any problems or questions of support are the responsibility of the software authors.

Order Item:

TheNET X1 Sysop Manual	**DOC-X1**	**$5.00**
ROSE Sysop Manual	**DOC-ROSE**	**$5.00**
TheNET X1 Software	**SW-X1**	**$2.00**
ROSE networking software	**SW-ROSE**	**$2.00**

Networking EPROMs

ANS offers an EPROM programming service, for those networkers with no access to an EPROM programmer. These are offered essentially at cost, more to help you build a network more easily, than as a source of profit. Our EPROMs are generally used, and we check each one after it is programmed to verify that the LEDs do the right things, but cannot verify proper on-the-air operation. EPROMs are sold with the understanding that they are not returnable, but replaceable if defective. Each one is programmed with your parameters (as indicated on the form below), labelled, and shipped in a hard anti-static case. These EPROMs will function only in a Z-80 based TNC2-style TNC.

All EPROMs are programmed with the latest version software, unless otherwise specified. If you specify a version of software that is not available, the latest version will be used.

Order Item:

ROSE Eprom (27C256)	**EPROM-256**	**$5.00 (see questions below).**
TheNET X1 EPROM (27C512)	**EPROM-512**	**$7.00 (see questions below).**
TheNET v2.11 EPROM (27C256)	**EPROM-256**	**$5.00 (see questions below).**

SPECIAL: If you provide a usable EPROM, the binary object file(s) on floppy, and a postage-paid return mailer (each EPROM weighs 1/2 ounce), we'll erase and program it for $2.00 with NO SHIPPING CHARGE! However, if the EPROM is bad, or something is missing, we won't be able to process it.

TO ORDER AN EPROM:

To order an EPROM, you must either:

A) (*Preferred*) Create an binary object file for each EPROM desired, using the network software, and send it to us on floppy (which will be returned), or

B) Generate a text file with the desired parameters (PATCH.EXE will do this for TheNET X1, or create a .PAR file for ROSE) and send it on floppy (which will be returned), or

C) Answer the questions below. Please type or print neatly, using a separate piece of paper for each EPROM ordered. The standard default parameters will be programmed into the EPROM, and you can then edit them remotely as sysop.

1. What is the Callsign and SSID of the Node/Switch?
2. What is the Node Name or Address?
3. Is this a User port, Backbone, or Wireline port (pick one)?
4. How many other Nodes/Switches/BBSs/etc. are on the same radio channel?
5. What is the radio baud rate to be used?

6a. What brand/model radio will be used?

6b. What is the TX Delay value, in msec., for the radio (if known)?

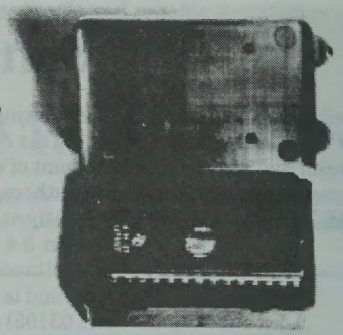
7. Where is the site located (City, State, Zip)?

8a. TheNET X1 Only: Specify the INFO text (up to 80 characters).

8b. ROSE Only: Specify the Banner text (up to 40 Characters).

9. TheNET Only: Specify the password, if desired (up to 80 characters).

10. Please write down any other information about the node/switch that may be important or useful.



3105 Modem Upgrade to 2400 Baud

Amateur Networking Supply offers a kit that allows you to upgrade any TCM3105 modem chip to operate at 2400 baud instead of 1200 baud. The kit includes parts to upgrade two modems and complete instructions for retuning the system. There are no modifications to the radio necessary. The advantage to this upgrade is a somewhat higher data capacity for a given link (not quite twice, because of TXDelay). The disadvantage is a loss of robustness (ability to receive without error), estimated at 3dB. That means that a marginal path will cease to function, but a good path will work just fine. If you can live with the disadvantage, this is a great way to upgrade links with minimal investment.

Order Item:

3105 Modem Upgrade	**3105-UP**	**$19.95 (for two modems)**

Amateur Networking Supply

Post Office Box 219 • Montvale, New Jersey 07645-0219

ORDER FORM

ORDERING: Please complete this form and mail it with your payment to: ANS, PO Box 219, Montvale NJ 07645-0219 USA

PAYMENT: We accept personal and company checks, money orders, and government agency purchase orders. We will also ship UPS COD, for which we will charge actual shipping and COD charges plus $1.50 for handling. NO MINIMUM ORDER for US orders. All prices are subject to change without notice, and all items are subject to prior sale. We reserve the right to limit quantities.

FOREIGN ORDERS: Minimum order: $25.00 excluding shipping ($12.00 for Canadian orders). All payments must be in US Dollars. Any taxes and duties will be collected by the delivering agent. Please see below for shipping charges.

SALES TAX: All orders being shipped to a New Jersey address must include 6% of the total before shipping. Please be advised that we are not able to remit sales tax to states other than New Jersey. If purchases are subject to sales tax in another state it will be your responsibility to remit to that state.

SHIPPING CHARGES: Standard shipping within the United States is via 2-Day Priority Mail, for a flat fee of $3.00. Orders to Canada will be shipped via Air Mail, for a flat fee of $4.50. Foreign Orders will be shipped Surface Parcel Post for a flat fee of $8.00, or via Air Parcel Post for $16.00 (please specify). Although we try to ship all orders within 48 hours, please allow up to 4 weeks for shipping.

WARRANTY AND PRODUCT LIABILITY: A warranty statement is delivered with each product. In no event shall Amateur Networking Supply's liability exceed the buyer's purchase price nor will Amateur Networking Supply be liable for any indirect or consequential damages. We cannot accept responsibility for improper assembly techniques, physical damage, or abuse.

RETURNED CHECKS: There will be a $20.00 charge added to the face amount of any check returned to ANS, plus any legal fees incurred. Please don't bounce a check on us, thanks.

GUARANTEE: ***Your Satisfaction Is Fully Guaranteed!*** We want you to be completely satisfied with your purchase. If, for any reason, you are not satisfied, please write to us, explaining the problem and what we can do to satisfy you.

Ship To: (Please Print)

SPR94CAT

Name:		Date:
Address:		
City:	State:	Zip + 4: –
Callsign:	Daytime Phone: ( )	

Item Description	Quantity	Price	Cost

Where did you hear about us?

OFFICE USE ONLY

CNO AMT ABN DEP

RCVD SHIPPED

ORDER NO.

Subtotal	
NJ 6% Tax	
Shipping *(see above for amount)*	
Amount Enclosed	

Amateur
Networking
Supply

PO Box 219
Montvale NJ 07645

HERE IS THE CATALOG
YOU REQUESTED !

SPR94CAT

BUILD A PACKET NETWORK!

A Packet Network consists of any number of individual sites, linked together via Amateur Radio. The network is then available to carry data from any point to any other point within itself.

A site consists of two or more Terminal Node Controllers (TNCs), each with a ***Networking EPROM*** installed. These network TNCs are interconnected on their RS-232 ports using a ***NETRIX Diode Matrix Board***, allowing them to route packets to destinations in the network. Each TNC is connected to a radio, using a ***Radio to TNC Cable***. Nearly any radio may be used, but low-cost data radios are available, which use 9.6 volts DC, obtainable from our ***Power Supply for Data Radios***. Each TNC and data radio power supply requires a source of 12 volt DC power, which is most easily distributed with an ***ANS Power Distribution Board***. To connect data servers (such as Bulletin Board Systems, DX spotting clusters, weather data collection stations, the site manager's user TNC, and so on) directly into the network (vastly improving user access), you would use a ***WireModem Adapter***, which (as the name implies) is a Modem that operates over a wire. As an alternative, certain computer-based data servers using special software can be connected directly to the matrix, through an ***RS-232 Timeout Timer*** to prevent computer hardware or software failures from affecting the network matrix.

Within this catalog are a number of items, each carefully designed to make the construction of a Packet Networking site less expensive, easier, neater, and more reliable.